

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Bulkhead/Deck Penetration**

with type designation(s)

Roxtec sealing system with multidiameter technology: R-series (steel/aluminium)

Issued to

Roxtec International AB
KARLSKRONA, Sweden

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards**Application :****Cable and pipe penetrations approved for water - and gas tightness in steel and aluminium bulkheads or decks.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**This Certificate is valid until **2019-09-21**.Issued at **Høvik** on **2017-01-04**DNV GL local station: **Gothenburg**Approval Engineer: **Marta Alonso Pontes**for **DNV GL**

Andreas Kristoffersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-002582-7**
Certificate No: **TAE000000X**
Revision No: **2**

Product description

"Roxtec sealing system with multidiameter technology: R-series (steel/aluminium)"
consisting of a steel or aluminium sleeve, bolted, welded or attached through expansion (R X) to a steel or aluminium section. Sleeve is fitted with a Roxtec R frame (standard or EMC) in sizes 70-200. The R-frame is filled with Roxtec (standard or EMC) halogen free RM modules.

Application/Limitation

Cable and pipe penetrations approved for water - and gas tightness in steel and aluminium bulkheads or decks, limited to a pressure of 4 bar for water tightness and 2,67 bar for gas tightness.

For bolted versions with gasket and self-tapping screws, the pressure is limited to 3,33 bar water tightness and 1,67 bar gas tightness.

When used in High Speed and Light Crafts the penetrations are subject for approval in each case.

The penetration system is generally not to be used for penetrating boundaries of tanks.

When requested to be used in watertight bulkheads on passenger ships and Special Purpose Ships (SPS), the penetration system has to comply with the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (2009 issue). Penetrations passing through watertight bulkheads are subject for separate examination and approval by actual flag administration.

Each product is to be supplied with its manual for installation and use.

Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, April 2009.

Test reports: DNV No. MLM 010238 dated 2001-08-30, No. MLM 010247 dated 2001-08-29 and No. MLM 030473 dated 2003-01-27 and SMM 04-4088 dated 2004-06-16 from DNV Malmø.

Certificate retention survey report. Ref. MED audit carried out 2 November 2010.

Tests carried out

Pressure tests with water and Helium according to Type Approval Programme 8471.19-1 dated May 2001

Marking of product

The product is to be marked with name of manufacturer and type designation

Periodical assessment

The scope of the periodical assessments to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE